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## COHESION DEVICES IN RELATION TO QUALITY OF ENGINEERING STUDENTS' GENRE-BASED WRITINGS

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**Santi Agustina Manalu**

Institut Teknologi Del, Laguboti, Indonesia

Corresponding e-mail: santi.manalu@del.ac.id

**Abstract:** Writing skill is one of the four language skills in learning English in EFL context. In writing, cohesive devices are used to establish the links among the ideas in a sentence and paragraph. This study was aimed at investigating IT Del engineering students' use of cohesive devices in genre based writing and the relationship between the number of cohesive devices used and writing quality. There were 30 writings selected out of 50 compositions written by the engineering students at IT Del. The quantitative analysis was performed to explore the results. The findings revealed that the students applied a variety of cohesive devices in their English compositions, among which reference category had the highest percentage, followed by lexical and conjunction categories. Furthermore, it was found that there is no significant relationship between the number of cohesive ties used and the quality of writing. The results have some important implications for learning English as a Foreign Language.

**Keywords:** *Cohesive devices, genre-based writing, engineering students' writings*

### 1. INTRODUCTION

Many studies have viewed that writing skill is difficult in the English as Foreign Language (EFL) context. The difficulty is due to the process needed to generate and organize idea using the appropriate words, sentences, and paragraph organization. Writing in EFL setting as well is one of the most challenging areas for teachers and students. Some studies found in Ahmed (2010), Liu & Qi (2010), Dastjerdi & Samian (2011) reveal that the students encountered some problems in the cohesion of EFL writing.

Cohesion in writing is related to connecting sentences and phrases. Halliday & Hassan (1976) defined cohesion as a semantic relation between sentences within the text and the concept of tie made it possible to analyze a text in terms of its cohesive properties and it gave a systematic account of its patterns and texture. Cohesive devices can be manifested in two major groups: grammatical and lexical cohesion. Grammatical cohesion is realized in the form of reference (the indication of information such as personal, demonstrative, and comparative reference), substitution (the replacement of one component by another), ellipsis (the omission of a component), conjunction (the relationship between other

elements of the text, such as additive, adversative, casual, and temporal). While, lexical cohesion is distinguished in the form of repetition of the same lexical items.

The studies is investigating the relationship between the uses of cohesive devices and writing quality show that so far no agreement has been obtained. Some researchers like Wenjun (2000), Yang & Sun (2012), Liu & Braine (2005) revealed that the use of cohesive ties has a significant relationship with quality of writing and the learners having cohesive knowledge were able to write better than those who had less. Meanwhile, the findings from the other studies conducted by Meisuo (2000), Dastjerdi (2011) describe no statistically significant relationship between cohesion devices and writing score. Thus, it is clearly known that there is still the gap in the study on the relationship between the frequency of cohesive ties and the quality of writing and this issue leads this current study in finding the use of cohesive devices in relation to Engineering students' writing quality. The genre-based writing composed by the student in this study is either technical description text or technical explanation text. This study addressed the following question:

Is there any significant relationship between the frequency of cohesive devices used and the quality of writing composed?

### 1.1 Significance of the Study

The analysis of cohesion in this study explored the variety of cohesive devices used in learners' writings and how the use of cohesive devices correlated with the quality of learner writings. The findings of this study are expected to be useful for:

Pedagogical Implications that lead to:

- a. A better understanding of the cohesive devices in the students' English writing.
- b. Encourage both learners and teachers to pay attention to the cohesion in writing. The teachers of writing have to avoid focusing on the word and sentence level. They have to teach beyond structure analysis and focus on the whole text features that can give the learner understanding to the fundamental features in achieving unity in writing.
- c. Enhance the students' awareness of the characteristics of good writing including cohesion.

## 2. REVIEW OF LITERATURE

### 2.1. The Concept of Cohesion

The theory of cohesion is clearly explained in Halliday and Hassan's (1976) Cohesion in English book. The concept of cohesion in text is related to semantic ties or "relations of meanings that exist within the text, and that define it as a text. Cohesion significantly contributes to a text meaning construction. Without cohesive ties, sentences or utterances would seem to lack any type of relationship to each other and might not be considered text. Halliday and Hasan state cohesion as a semantic between sentences within the text:

"Cohesion occurs when the interpretation of some elements in the discourse is dependent on that of another. The one presupposes the other, in the sense that it cannot be effectively decoded except by resource to it. When this happens, a relation of cohesion is set up, and the two elements, the presupposing and the presupposed, are thereby at least potentially integrated into a text" (1976:4)

Cohesion is expressed by organizational language. Language can be described as a multiple coding comprising three levels of coding: semantics (meanings), lexicogrammar (forms) and the phonology and graphology (expressions). Cohesion is expressed through the grammar and vocabulary.

The cohesive devices defined by Halliday and Hassan are divided into two major groups: *grammatical and lexical cohesion*. These two groups are categorized as follows:

#### 1. Grammatical Cohesion

- a. Reference
- b. Substitution
- c. Conjunction
- d. Ellipsis

#### 2. Lexical Cohesion

- a. Reiteration
- b. Collocation

### 2.2. Cohesive Devices

#### 2.2.1. Grammatical Cohesion

##### a. Reference

In reference, "the information to be retrieved is the referential meaning, the identity of the particular thing or class of things that is being referred to; and the cohesion lies in the continuity of reference whereby the same thing enters into discourse on a second time" (Halliday & Hasan 1976)

There are three main of cohesive references: personal, demonstrative, and comparative. Personal reference refers to the speech situation using noun pronouns such as *he, him, she, her, etc.* and possessive determiners like *mine, yours, his, hers, etc.* Demonstrative reference keeps tracks of information through location using proximity such as *this, these, that, those, here, there, then, and the*. Comparative reference uses comparative referring expressions such as *similarly, such, equal, identical, etc*

##### b. Substitution

The types of substitution identified by Halliday and Hasan are nominal, verbal, and clause. In nominal substitution, the typical substitution words are *one, and ones*. The most common word in verbal substitution is the verb *do*. In clausal substitution, the entire clause is substituted.

##### c. Conjunction

Halliday and Hasan state that conjunction is used to connect neighbouring sentences according to certain semantic relations (additive, adversative, causal and temporal). Additive conjunction is signalled by *and, too, furthermore, additionally, etc.* Adversative conjunction is to indicate contrary expectation and expressed by *yet, though, only, but, in, in fact, rather, etc.* Causal conjunction is to express result, reason and signalled by *so, then, for, because, as a result, etc.* Then, temporal conjunction is expressed by the words such as *then, and then, next, afterwards, after that, sequentially, etc.*

### 2.3. Lexical Cohesion

#### 2.3.1. Reiteration

Reiteration is classified into four types: repetition, synonym, superordinate word, and general word.

#### 2.3.2. Collocation

This type of cohesion deals with the relationships between words on the basis of the fact these often occur in the same surroundings.

### 2.4. Genre Approach Writing

Genre approach refers to an approach to teaching writing focusing on teaching particular genre such as essays, assignments, and other pieces of writing that students need to be able to produce in academic settings (Paltridge 2004 as cited in Eliwanti & Maarof 2014).

In the genre approach, samples of a specific genre are introduced, and some distinctive characteristics of the given genre are pointed out so that students notice specific configurations of that genre.

## 3. METHODOLOGY

### 3.1 Participants

The selected samples of this study were drawn randomly that each individual had the same probability of being chosen at any stage during the sample taking. Thus, the participants in this study were 90 engineering students who enrolled in an English subject. The participants came from different majors: engineering management, bioprocess engineering, mechanical engineering, information system engineering and informatics engineering. At the end of the course, the students were assigned to write different types of genre based compositions namely technical and explanatory writings.

### 3.2 Data Collection

During the semester, the students were taught the theories of genre-based writing including the purpose, organization, and linguistic features. The students were assigned to produce the genre-based writings on the topics provided. The students wrote the technical writing in group. There were 30 compositions from 90 students to be analyzed. The writing scores considered as the indicator of writing quality were collected from the lecturers' assessments.

### 3.3 Data Analysis

The data collected were analyzed through two procedures: identifying and counting the number of cohesive ties and assessing the quality of the writings. For the first step of data analysis, cohesion features were used to find out the types of cohesive devices used in genre-based writings. Then, calculating the frequency, mean of each cohesive ties, and the correlation between each devices and writing quality was correlated using SPSS statistical application. However, two categories of cohesive devices, Ellipsis and Substitution, were not analyzed because they were seldom used in formal writing (Liu & Braine, 2005)

The types of cohesion devices were coded so that the writer could identify the cohesive devices easily in the participants' writings. The

Cohesion	Coding	Cohesion	Coding
Reference	RC	Lexical Ties	LC
Personal	PR	Repetition	RL
Demonstrative	DR	Synonym	SL
Definite Article	AR	Hypernym	HL
Comparative	CR	Hyponym	HPL
Conjunction	CJC	Collocation	CL
Additive	AC		
Adversative	ADC		
Causal	CC		
Temporal	TC		

coding scheme is presented in Table 1.

*Table 1. Summary of Types of Cohesion and Coding Scheme*

## 4. RESULTS AND DISCUSSION

### 4.1 Cohesive Devices Used in Genre-Based Writings

The type and number of cohesive devices were analyzed by applying Halliday and Hasan's (1976) cohesive theory as the foundation for data analysis of this study. Table 1 described the frequency and percentage of

various subcategories of cohesive devices. As shown in the data, the participants used a variety of cohesive devices. It could be seen that the participants employed reference devices (44.51%) more frequently than lexical devices (33.21%), followed by conjunction devices (22.28%)

**Table 2. Cohesive Devices Used in Writings**

Cohesion	RC	CJC	LC	Total
Frequency	721	361	538	1620
Percentage (%)	44.51	22.28	33.21	100

To describe the variety of different subcategories of cohesive ties, the detailed analysis is presented below.

#### 4.1.1 Reference Devices Used in Writings

The data shown in table 3 described that among the four sub-categories of references devices, definite article devices (68.65%) were the most frequently used, followed by personal reference (20.80%), demonstrative devices (9.15 %) which had the least frequency of ties.

Table 3. Reference Devices Used in Writings

Cohesion	PR	DR	AR	CR	Total
Frequency	150	66	495	10	721
Percentage%	20.80	9.15	68.65	1.39	100

These findings differ from the studies conducted by Liu and Brain (2005), Dastjerdi & Samian (2011) in which the number of personal references had the highest frequency of ties.

When identifying the cohesive ties used by the participants, the writer found the participants used the article “the” more frequently than other articles.

#### 4.1.2 Conjunction Devices Used in Writings

Table 4 described the frequency and percentages of the subcategories of conjunction devices. Among these four categories additive devices (90.30%) had the largest percentage of use, and then followed by causal devices (4.99 %), temporal devices (3.60 %) and adversative devices (1.11%) that occupied the least percentage.

**Table 4. Conjunction Devices Used in Writings**

Cohesion	AC	ADC	CC	TC	Total
Frequency	326	4	18	13	361
Percentage%	90.30	1.11	4.99	3.60	100

In terms of conjunction devices used, the participants strongly preferred using simple words to longer phrases to link the ideas in their writings. Among the

additive items, the words “and”, “or” and “also” were the highest frequency of use. In terms of adversative items, they often used “but” to describe contrast. In temporal features, the participants often employed “then”, “next”, “finally”, “first”, “second” to describe the logical sequences. In causal ties, “because of”, “because” were dominantly used in their compositions. When describing the reasons, most participants were not able to differentiate how to use “because” and “because of”. It can be concluded that the participants had difficulty using cohesive devices and most of them were not familiar with using other complex cohesive devices such as “on the other hand”, nevertheless to show an opposite idea or exception, and “in addition”, “furthermore” to introduce an additional idea.

#### 4.1.3 Lexical Devices Used in Writings

As shown in Table 5, repetition ties (86.43%) were calculated the largest percentage of use, followed by hypernym items (8.92%), synonym ties (3.16%), Hyponym devices (0.93%) and collocation ties (0.56%).

Table 5. Lexical Devices Used in Writings

Cohesion	RL	SL	HL	HPL	CL	Total
Frequency	465	17	48	53	3	586
Percentage%	86.43	3.16	8.92	0.93	0.56	100

These study findings correspond to the studies conducted by Liu & Brain (2005), Dastjerdi & Samian (2011) indicating that the participants had the difficulty to convey their ideas, choose the right words in writing. As the result, most of their writings were filled with the repeated same words which affected the quality of their writings.

#### 4.2 Correlation between the Number of Cohesive Devices and Writing Quality

The main purpose of this study was to investigate the relationship between the number of cohesive devices and writing scores. To reach the purpose of this study, the numerical writing scores and the number of cohesive ties were correlated by Pearson Product Moment Correlation Coefficient.

**Table 6. Correlation between the Number of Cohesive Devices and Writing Scores**



Cohesion	Correlation (r)	Cohesion	Correlation (r)
Reference		Lexical Ties	
Personal	-.121	Repetition	.084
Demonstrative	-.165	Synonym	-.018
Definite Article	.110	Hypernym	-.056
Comparative	-.090	Hyponym	.019
Conjunction		Collocation	.015
Additive	.044		
Adversative	.233		
Causal	-.165		
Temporal	-.182		

Note: \* $p < 0.05$   
\*\* $p < 0.01$

Table 6. showed the insignificant and negative correlations between (1) writing scores and personal reference ties ( $r = -.121$ ), (2) writing scores and demonstrative items ( $r = -.165$ ), (3) writing scores and definite article ( $r = .110$ ), (4) writing scores and comparative ties ( $r = -.090$ ), (5) writing scores and additive ties ( $r = .044$ ), (6) writing scores and adversative devices ( $r = .233$ ), (7) writing scores and causal devices ( $r = -.165$ ), (8) writing scores and temporal devices ( $r = -.182$ ), (9) writing scores and repetition devices ( $r = .084$ ), (10) writing scores and synonym ties ( $r = -.018$ ), (11) writing scores and hypernym ties ( $r = -.056$ ), (12) writing scores and hyponym items ( $r = .019$ ), and (13) writing scores and collocation ties ( $r = 0.15$ ).

From the data mentioned, it is obvious that the number of cohesive devices and writing quality were not significantly correlated. In other words, the number of cohesive devices did not determine the quality of writing. A reasonable justification behind the absence of significant correlation between the number of cohesive devices and writing quality could be due to the participants' unawareness to use cohesive devices. The participants overused and misused the cohesive devices in their compositions. Analysing their writings revealed that most of them did not understand how to use cohesive devices properly. Some of them were confused to use the reference ties. They tended to confuse the use of definite and indefinite articles. Apart from the problem in reference devices, the participant overused the additive devices (*and, or, also*) and causal ties (*because, because of*). Another difficulty that the writer found from their writings was the problem in lexical devices, even though they were

calculated as the second highest cohesive ties used in their writings. Most of the participants used repetitions of the same words. They were not able to describe the same meanings in different words. When observing what they wrote, they rarely employed the other lexical devices. Furthermore, the analysis described that the participants had difficulty choosing the right words.

## 5. CONCLUSION

In summary, the findings of this study revealed that the participants employed a variety of cohesive devices. In other words, they had knowledge to identify and use them in their writings. Among the three cohesive devices analyzed, reference devices (44.51%) had the highest percentage of the number of cohesive devices used in genre-based writings, followed by lexical devices (33.21%), and conjunction devices (22.28%).

In terms of reference devices, article devices (68.65%) were the most frequently used, and demonstrative devices (9.15 %) were the least frequently used. When observing the participants' writings qualitatively, it could be concluded that they did not understand how to differentiate and use definite and indefinite articles correctly.

The analysis of conjunction devices stated that additive devices (90.30%) had the largest percentage of cohesive devices used and adversative devices (1.11) occupied the least percentage. It was found that the participants preferred using simple conjunctions such as *and, or, also, but, because* more frequently than other conjunction devices like *on the other hand, nevertheless, furthermore*.

In lexical devices, repetition ties (86.43%) were calculated the largest percentage of use and collocation ties (0.56%) were the least frequently used. It was found that the major problem in writing was lack of vocabulary and choosing the right words.

Analyzing the correlation between the numbers of cohesive devices and writing quality, it was found that there is no significant relationship between the number of cohesive devices used by the participants and their writing quality. This is to say that the number of cohesive devices did not determine the participants' writing scores.

The findings of this study suggest some implications both for English teacher and EFL learners. Firstly, the learners need to have

lexical knowledge which is fundamental in enhancing the quality of writing. Secondly, because the samples in this study were found difficulty using cohesive devices properly, the learners need to be taught how to use them properly with the concrete examples.

In short, this research analyzed the cohesive devices specifically in genre-based writing by engineering students. This limitation is mentioned for further research to analyze the cohesive devices in other writings.

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